

11-1-12

## INEQUALITIES

Equalities - equations where exactly one value is equal to exactly the same value

Symbol:  $=$

Ex:  $7 + 3 = 10$

$10 = 10$

one value

Inequalities - values are not exactly equal  
- could have more than one value

Symbols:  $\neq$  not equal to

$<$  less than

$>$  greater than

$\leq$  less than or equal to

$\geq$  greater than or equal to

## SOLVING ALGEBRAIC INEQUALITIES

\* Solve them the same way you solve equations, but keep the inequality sign:

4 Main Concepts

① Use inverse operations

② Get variable alone

③ Do same to both sides

④ Choose # w/ variable

Ex:

$$x - 4 \geq 2$$

$$x \begin{array}{c} -4 \\ +4 \\ \hline 0 \end{array} \geq \begin{array}{c} 2 \\ +4 \\ \hline 6 \end{array}$$

$$x \geq 6$$

Ex:

$$y \begin{array}{c} +7 \\ -7 \\ \hline 0 \end{array} < \begin{array}{c} 9 \\ -7 \end{array}$$

$$y < 2$$

Ex:

$$\frac{x}{3} \leq 10$$

$$\frac{1}{1} \cdot \frac{1x}{3} \leq 10 \cdot \frac{3}{1}$$

$$x \leq 30$$

Ex:

$$5x \geq 25$$

$$\frac{1}{1} \cdot \frac{5x}{5} \geq \frac{25}{5}$$

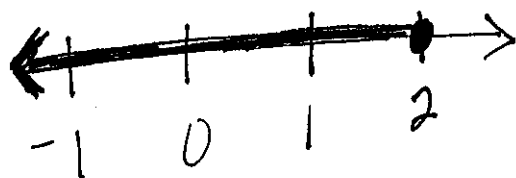
$$x \geq 5$$

# GRAPHING INEQUALITIES ON a #LINE

\* You can put all the solutions on a # line by darkening everything the variable can be

- - means "include this # & go beyond"
- - means "do not include this # but go beyond"

EX:  $x \leq 2$  ← start w/ 2 & go left



EX:  $x > 1$  ← START w/ 1 & go right

